It is possible to simulate a lot of real decision-making and conflict situations by random weighted graph which we can control. It is important to find the optimal solution with respect to the given criteria. The objective of this thesis is to present multicriteria optimization and multicriteria stochastic optimization. Further, the reader becomes familiar with three examples of problems leading to control stochastic networks. We present a minimization of a stochastic maximum-reliability path, minimization of investment cost and the rejection costs and thirdly combination of stochastic programming and Markov decision process. Finally we present the application of multicriteria optimization on an example.